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内蒙古阿左旗乌兰塔塔尔早渐新世鬣齿兽化石[1)]

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摘要 记述了在内蒙古阿左旗乌兰塔塔尔早渐新世乌兰塔塔尔组中发现的鬣齿兽一新种——内蒙古鬣齿兽(*Hyaenodon neimongoliensis* sp. nov.)。新种在大小和特征上与 *Hyaenodon pervagus* 相近或相似,但它的p1为单齿根,前面的下前臼齿之间有齿隙,下颊齿无舌侧齿带。

关键词 内蒙古,乌兰塔塔尔,早渐新世,肉齿类
中图法分类号 Q915.873

20世纪80年代,本文作者在内蒙古阿左旗乌兰塔塔尔地区早渐新世地层中采得鬣齿兽标本,最近研究认为它们代表了一新种——内蒙古鬣齿(*Hyaenodon neimongoliensis*),在此予以简单报道。乌兰塔塔尔动物群的时代原认为是中渐新世(黄学诗,1982),后来的研究表明它应是早渐新世(黄学诗,1998)。内蒙古鬣齿兽的发现为这个动物群增加了新的成员。

肉齿目 Creodonta Cope, 1875
鬣齿兽科 Hyaenodontidae Leidy, 1869
鬣齿兽属 *Hyaenodon* Laizer et Parieu, 1839
内蒙古鬣齿兽(新种) *Hyaenodon neimongoliensis* sp. nov.
(图1)

正型标本 一带c1,p2~m3的右下颌骨(V 12438)。

副型标本 一残破左上颌骨附P4~M2(V 12439)。

其他材料 一右下颌骨残段带c1,p2~p3(V 12440);一单个的左p2(V 12441)。

产地及层位 内蒙古阿左旗乌兰塔塔尔,早渐新世乌兰塔塔尔组。

特征 与 *Hyaenodon pervagus* 大小接近、特征相似的一种鬣齿兽,不同的是p1为单根,p2与p3、p3与p4之间均有齿隙,m3长大,下颊齿齿带不发育;上臼齿原尖完全退化。

描述 下颌骨比较细长、平直,下颌联合后缘达p3前缘。后颏孔较硕大,椭圆形,前后径大(约6.5mm),位于p3之下骨体中部(表1)

下犬齿中等大小,横切面椭圆形,前外—后内径大,顶端弯向后内。

所有下颊齿齿带均不发育,下前臼齿无前基尖。

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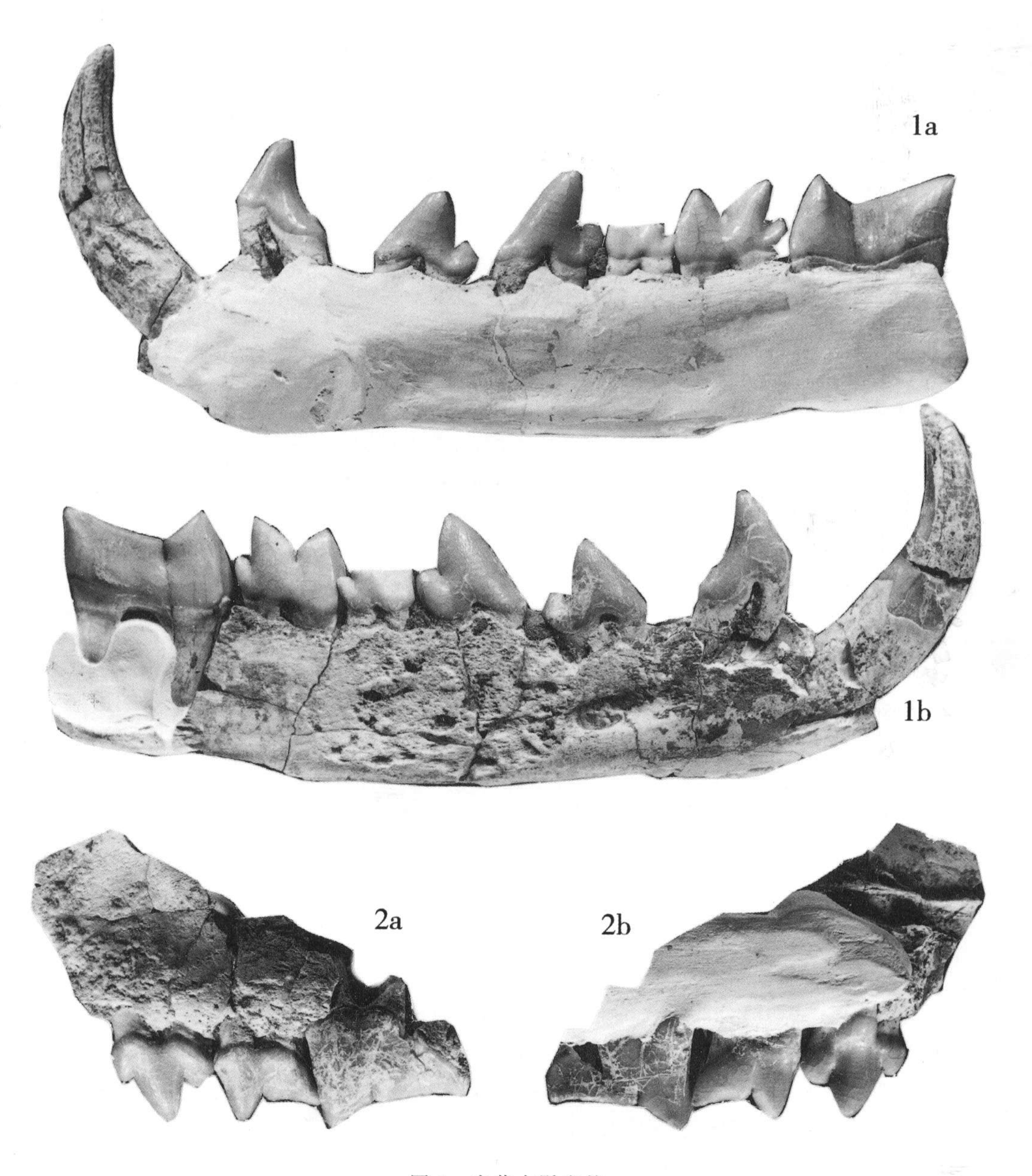


图1 内蒙古鬣齿兽

Fig.1 *Hyaenodon neimongoliensis* sp.nov.

1. 右下颌骨(Right lower jaw)带 c1,p2 ~ m3(V 12438) 1a 舌面观(Lingual view);1b 唇面观(Labial view)

2. 左上颌骨 (Left upper jaw)带 P4 ~ M2(V 12439) 2a 唇面观(Labial view);

2b 舌面观(Lingual view),均为原大 all natural size

p1 已断失,单齿根,比 p2 的前齿根细得多。

p2 双齿根,后齿根比前齿根粗壮。齿冠较高。主尖靠前,顶端后钩。有微弱的前、后棱,前棱短直,后棱较弯长。无前基尖(anterobasal cusp)但有后基尖(posterobasal cusp)。后

基尖在正型标本和V 12441上极小,勉强可以辨认;但在V 12440号标本中大而明显。

p3在齿列位置上比p2和p4低,与m2和m3相近,并与p2之间有7mm的齿隙。齿冠顶端向后倾,但不像p2那样向后钩。后基尖无论在正型标本还是在V 12440上均很发育,粗大,形成较明显的跟座。

表1 内蒙古鬣齿兽下牙齿测量

Table 1 Measurements of lower dentition of *Hyaenodon neimongoliensis* sp. nov. (mm)

	c1		p2		p3		p4		m1		m2		m3	
	长(L)	宽(W)	长(L)	宽(W)	长(L)	宽(W)	长(L)	宽(W)	长(L)	宽(W)	长(L)	宽(W)	长(L)	宽(W)
V 12438	12.5	9.4	13.5	6.0	14.8	6.5	15.8	6.9	10.6	5.7	16.0	7.2	23.2	8.0
V 12440	10.5	8.0	14.0	6.5	16.8	7.8								
V 12441			12.0	6.2										

p4似p3,只是齿冠显得高,与p3之间有2mm的齿隙。前臼齿之间存在齿隙表明该动物可能为长头形动物(表2)。

表2 内蒙古鬣兽的下齿列测量

Table 2 Measurements of lower tooth row of *Hyaenodon neimongoliensis* sp. nov. (mm)

	c1~m3	c1~p4	c1~p3	c1~p2	p2~m3	p2~p4	p2~p3	p3~m3	p3~p4	p4~m3	m1~m3
V 12438	127.0	77.5	59.5	37.5	103.0	52.5	35.0	84.0	32.8	66.5	50.0
V 12440			63.0	40.0			38.0				

m1相当小,长度约为m2的66%,不足m3之半。三角座较大,已磨蚀,但仍可看出下前尖和下原尖。跟座低而小。

m2比m1大得多,长约为m3的68%。下前尖和下原尖长度近等,后者略高,之间的内侧谷深而开阔。外壁较平,下次中凹不明显。下原尖和下前尖之间有切迹。跟座很小。

m3下前尖粗壮。下原尖长,刀刃状,约占整个牙齿长度的65%,与下前尖之间的裂切较深。无跟座。

P4~M2紧密排列无齿隙。P4略呈三角形。原尖退化,位置相当低,位于唇侧主尖内侧基部。外侧三个齿尖呈笔架状,主尖最高大,后侧尖次之,前侧尖最小,它们之间均有浅沟隔开。M1和M2齿冠呈长楔形,前宽后尖,长(尤其是M2)比宽大得多。前尖和后尖合并成假双尖。无前附尖,原尖完全退化。M2比M1长得多,后附尖微向唇侧翘。在假双尖与后附尖之间有较深的裂切。上颊齿测量见表3。

表3 内蒙古鬣齿兽的上颊齿(V 12439)测量

Table 3 Measurements of upper cheek teeth (V 12439) of *Hyaenodon neimongoliensis* sp. nov. (mm)

	P4	M1	M2	P4~M2	P4~M1	M1~M2
长(L)	14.8	15.5	21.5	50.5	30.5	36.0
宽(W)	10.5	8.8	9.2			

比较与讨论 肉齿目鬣齿兽科的鬣齿兽属在欧亚和北美大陆已发现了许多种。亚洲

的鬣齿兽主要集中在蒙古共和国，大约有5~6个种。内蒙古鬣齿兽与蒙古的 *Hyaenodon incertus*（Dashzeveg，1985）的前面的前臼齿之间均有齿隙，可能都属于长头形动物。但后者的p4的跟座高而窄，下颌联合伸至p3中部，均与前者不同。蒙古的 *H. mongoliensis*（Dashzeveg，1964）的p2，p3和p4均无前基尖，与内蒙古鬣齿兽相同，但前者这些牙齿的舌侧中部齿带增厚，而后者不加厚。其个体也比内蒙古种大得多。*H. gigas* 是一种相当大的动物，与内蒙古鬣齿兽无法相比。在蒙古晚始新世鄂尔丁敖博组中发现的 *H. eminus*（Matthew and Granger，1925）的前面的下前臼齿无齿隙，p3和p4虽无前基尖，但有舌侧中部增厚的齿带，个体也比本文记述的种小。内蒙古鬣齿兽与我国发现的 *H. yuanchuensis*（Young，1937）很难对比，因为后者是一年轻个体，而且保存也不好，仅有两个乳下前臼齿较为完整。这个种据 Lange-Badre 和 Dashzeveg（1989）介绍，很像被归到 *H. incertus* 中的两件下颌骨（AMNH.26006，26007），它们的大小接近，p1也都是一个齿根。我们仅从下颌骨部分看，它比内蒙古鬣齿兽深得多。欧洲的 *H. heberti* 虽在p2和p3之间也有齿隙，但它的下前臼齿具前基尖。欧洲的另一个种 *H. minor* 不仅尺寸比内蒙古种小，而且它的m3具残迹状跟座。北美的鬣齿兽属经 Mellet（1977）整理，大约有9个有效种。*H. vetus*（p1~m3长90~93mm）、*H. montanus*（p1~m3长85~95mm）、*H. crucians*（p1~m3长77mm）、*H. mustelinus*（p1~m3长65mm）和 *H. venturae*（p1~m3长53mm）均为小种，个体比内蒙古鬣齿兽小得多。*H. microdon* 是该属中最小的种，p1~m3仅长36mm。*H. horridus*（p1~m3长128mm）和 *H. megaloides*（m1~m3长185mm）尺寸比内蒙古种大，尤其后者是属中最大的种。当然，除大小差异外，内蒙古鬣齿兽与上述各种在特征上也是有区别的。如 *H. vetus* 的p2与p3之间无齿隙，m3下原尖显著上翘；*H. montanus* 的下前尖棱（paracristid）显著地长，均与内蒙古鬣齿兽不同。*H. brevirostrus* 缺失p2，在p1与p3之间有很长的齿隙，这是与包括内蒙古鬣齿兽在内的所有其他种不同的特点。

内蒙古鬣齿兽与蒙古三达河的 *H. pervagus*（Matthew and Granger，1924）倒有许多相似之处，这表现在个体大小接近（除m3稍长外，其他牙齿测量数据均落在 *H. pervagus* 的变异范围——见测量表和 Lange-Badre and Dashzeveg，1989），它们的下前臼齿均无前基尖，P4的原尖小而低，上臼齿均无前附尖，M1和M2的原尖极度退化。但它们之间的区别也很明显，内蒙古鬣齿兽的p1为单齿根，前面的下前臼齿之间有齿隙，无内齿带增厚，三个下臼齿也无内齿带。而 *H. pervagus* 的p1为前齿根非常退化的双齿根，前面的下前臼齿之间无齿隙，内侧有齿带增厚，下臼齿的内齿带相当发育。

黄学诗（1993）记述过一个右"p4"（V 10523），暂放在 *Hyaenodon* sp.1，经过对比，从牙齿大小、高度和特征看，很像这个新种的右p3。而同文中记述的m1（V 10524），虽是年轻个体，但从尺寸看，仍比内蒙古鬣齿兽小。

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CREODONT (MAMMALIA) REMAINS FROM THE EARLY OLIGOCENE OF ULANTATAL, NEI MONGOL

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Key words Ulantatal, Nei Mongol, Early Oligocene, Creodonta

Summary

A new creodont, *Hyaenodon neimongoliensis* sp. nov. found in 1980's by the authors is briefly described in the present paper. This is the only named species of the order in the Early Oligocene Ulantatal Fauna (Huang, 1998).

Order Creodonta Cope, 1875

Family Hyaenodontidae Leidy, 1869

Genus *Hyaenodon* Laizer et Parieu, 1839

***Hyaenodon neimongoliensis* sp. nov.**

Holotype A right lower jaw with c1, p2 ~ m3 and broken root of p1 (V 12438).

Paratype A fragmentary left upper jaw with P4 ~ M2 (V 12439).

Other material A fragmentary right lower jaw with c1, p2 ~ p3 (V 12440) and an isolated left p2 (V 12441).

Horizon and locality Ulantatal, Alxa Zouqi, Nei Mongol; Early Oligocene Ulantatal Formation.

Diagnosis A species of *Hyaenodon* is close to *H. pervagus* in size and resembles morphologically, but differs from the latter in having single-rooted p1, having diastema in the front lower premolars, and in having no lingual cingulum in the lower cheek teeth.

Description The mandible is relatively elongate. The posterior margin of symphysis reaches the anterior wall of p3. The posterior mental foramen is large, elliptical in shape, the biggest dimension (anteroposterior direction) being 6.5mm, situating in the middle part of the mandible under p3.

c1 is medium-sized, elliptical in section, biggest dimension anteroexternal-posterointernally, and with tip curving backward.

The cingulum is poor and there is no anterobasal cusp in all lower cheek teeth. p1 is not preserved, having a single root which is much smaller than the anterior root of p2. p2 is double-rooted, the posterior one is robuster than the anterior one. The crown of p2 is high, with anteriorly situated main cusp and backward curved tip. There is a posterobasal cusp but no anterior one. The posterobasal cusp varies in different specimens, larger on V 12400 but indistinct on V 12441 and the type. p3 is lower than p2 and p4 on the tooth row, about in the same level with m2 and m3. There is 7mm diastema between p2 and p3. The posterobasal cusps both on p3 and p4 are large. p4 is similar to p3 morphologically, but higher than p3, and has 2mm diastema with p3.

m1 is small, about 66% of m2 and half of m3 in length. The trigonid is large. The paraconid and protoconid are visible though they are heavily worn. The talonid of m1 is very small. m2 is much larger than m1, about 68% of m3 in length. The protoconid is higher than paraconid, with notch in between and wide internal valley. The talonid is small. m3 paraconid is robust. The proto-

conid is long, about 65% of the tooth length. The notch between the two cusps is deep. There is no talonid.

The upper cheek teeth arrange closely from P4 to M2. P4 is roughly triangular in outline. The protocone is reduced, lower, situated in the inner side of external main cusp. The three outer cusps are nearly in the same line, of which the middle main cusp is biggest and the anterior one is smallest. There are shallow grooves among the three cusps. Both M2 and M1 are longer than wide, tapering posteriorly. M2 is similar to M1 in tooth morphology, but much longer.

Remarks *Hyaenodon* fossils were widely distributed in the EuroAsia and North America in Paleogene time. Asian *Hyaenodon* were mainly found in Mongolia, about 5 species have been reported (Lange-Badre and Dashzeveg, 1989). *H. mongoliensis* and *H. gigas* are large, and *H. eminus* is small in comparison with *H. neimongoliensis* sp. nov. *H. incertus* differs from the new form in having high and narrow talonid of p4, and more posteriorly situated symphysis. In China *H. yuanchuensis* has been recorded by Young(1937). The specimen of this species is a young individual and so poor in preservation that is hardly to make comparison. Its mandibular ramus is much deeper than that of the new taxon. European *H. heberti* possesses anterobasal cusp on lower premolars. *H. minor* has vistigal talonid on m3 besides its smaller size. There are about 9 species of *Hyaenodon* in North America (Mellett, 1977). *H. vetus*, *H. montanus*, *H. mustelinus*, *H. crucians*, *H. venturae* and *H. microdon* are the smaller *Hyaenodon*, all smaller than *H. neimongoliensis* sp. nov. *H. horridus* and *H. megaloides*, however, are larger than the new form. *H. brevirostrus* has no p2 and has long diastema between p1 and p3, which differ from all species of the genus, including *H. neimongoliensis* sp. nov.

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